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International Patent Application PCT/IB03/01243
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Miko Mihelic

In Response to the Written Opinion dated February 9, 2004

Enclosed are new claims 1-18 as well as new drawing sheets 1/4 - 4/4 with the request to issue a positive IPER on the basis of these new documents together with the original description. In case of further objections, a further written opinion or an interview with the examiner is respectfully requested as an auxiliary request.

For the purpose of this international preliminary examination, 4 independent claims are provided. Even if the examiner comes to the conclusion that this set of claims does not fulfil the conciseness requirement, it is respectfully requested to examine all claims in order to provide comprehensive guidance for the intended upcoming regional phase before the EPO. In case the examiner does not agree

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to examine all 4 independent claims, it is respectfully requested to examine independent claim 1.

The new drawing sheets 1/4 - 4/4 include figures that more closely resemble the originally filed drawings. In this respect, it is to be noted that the front wheel assembly as originally shown was inconsistent with the description in the specification. The front wheel assembly, when folded, was shown only being folded towards the down tube of the frame. The specification clearly states, however, on page 2, lines 7-8 (WO-document), that 'the front fork, which enables turning by 180 degrees and folding of the front wheel towards the down tube.' Therefore, to fold the front wheel assembly, the front wheel is rotated and folded. This was incorrectly depicted in the original drawings and has been corrected.

New claims 1 and 2 are based on (WO-document) (A) page 2, lines 5-6, figures 1-6, (B) page 2, lines 7-10, page 4, lines 16-18, page 5, lines 9-14, figures 1-2, (C) page 2, line 10, page 7, lines 17-19, figure 2. New claim 3 is based on (WO-document) (A) page 2, lines 5-6, figures 1-6, and (B) page 2, lines 7-8, figures 1-2.

According to the summary of the invention on page 2 of the original application, the invention is defined in that "A main feature and innovation is in the fact that the shape and size of the frame remains the same as in a usual non-folding or rigid men's or women's bicycle". This feature alone without necessarily combining it with the details of the foldable front-wheel assembly and the foldable rear wheel is disclosed as essential. It also distinguishes the folding bicycle according to the present invention clearly from all prior art folding bicycles since all prior art folding bicycles fold the frame itself, resulting in a

less rigid frame and therefore compromising the riding quality and steering properties of the bicycle.

Other innovations are the details of the foldable front fork; the down tube being made of two tubes with a slot therebetween, and the rear wheel that is either removable (Fig. 5 and 6) or foldable (Fig. 1 to 4). All of these features can be gathered from the first paragraph under the headline "Summary of the Invention" as independent and separate measures that do not necessarily all have to be combined with each other.

In particular, the summary of the invention does not describe the fork blades, the swing-arms, and the stirrup, and the summary of the invention describes the shaft and the coaxial sprockets (bearing assembly) only as to facilitate the folding of the rear wheel so that the technical expert would not consider these features as being essential to the primary invention which, as mentioned-above, relates to the frame that "remains the same as in a usual non-folding or rigid men's or women's bicycle". Accordingly, it is believed that the subject matter of new claims 1 to 3 is sufficiently supported by the original disclosure in accordance with the summary of the description.

New claim 4 is based on page 2, lines 7-10, page 2, line 15, page 5, lines 18-19 and the figures of the original application (WO-document).

Corresponding to the argumentation regarding the original disclosure of new claim 1, the technical expert would not consider the swing arms 17 and related features as being essential to the invention, since the invention is described in the summary of the invention according to page 2 of the original application (WO-document) as in particular being related to the structure of the

foldable fork. Contrary thereto, the swing arms 17 are described as allowing to adjust the position of the front wheel according to riding preferences, which effect is not primary essential to achieve a bicycle having improved folding characteristics.

From page 4, line 15 to page 5, line 20 (WO-document), the mechanism of folding the rear wheel 18 is described only on the basis of chainstays 26 being pivotable together with the rear wheel 18 around a pivot 19. The details of the said pivot 19 are only later described in connection with a preferable bracket 20 extending from the frame 1 (page 5, lines 21-23 (WO-document)). Accordingly, the structural details of the pivot 19 will not be considered as being primary essential to the invention. This can be gathered from Figs. 5 and 6 showing an embodiment with a non-foldable rear wheel assembly, since the first full paragraph on page 7 (WO-document), the second sentence of which reads: "In addition, in an alternate embodiment, quick release mechanism (30) is not provided, making strut (28) and stays (29) in fixed relation to one another."

New claim 5 is based on page 2, line 10 and page 7, lines 17-19 of the original application (WO-document).

New claim 6 is based on original claim 1, lines 17-20.

New claim 7 is based on page 5, lines 21-23 of the original application (WO-document).

New claim 8 is based on original claim 1, lines 9-11 and the original figures (WO-document).

New claim 9 is based on original figure 4.

New claim 10 is based on original claim 3 and original figure 4.

New claim 11 is based on original claim 3.

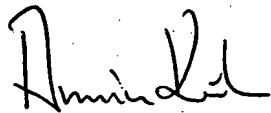
New claims 12-14 are based on page 7, lines 7-10 of the original application (WO-document).

New claim 15 is based on original claim 9.

New claim 16 is based on original claim 10.

New claim 17 is based on page 7, lines 11-12 of the original application (WO-document).

New claim 18 is based on original page 6, lines 3-4 of the original application (WO-document).



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Enclosures:

New claims 1-18, 3-fold

New drawing sheets 1/4 - 4/4, 3-fold

Claims

1. A folding bicycle comprising

- (A) a non-foldable, rigid frame (1) composed of a top tube, head tube, down tube(s) (2), and seat tube,
- (B) a front-wheel assembly that rotates and folds such that, when in a folded position, the front wheel (3) may be inserted in a gap (2') between two (2) down tubes, and
- (c) handlebars (34) that rotate one-hundred-eighty (180) degrees and downward toward the top tube.

2. A folding bicycle comprising

- (A) a non-foldable, rigid frame (1) composed of a top tube, head tube, down tube(s) (2), and seat tube, and
- (B) a front-wheel assembly that rotates and folds such that, when in a folded position, the front wheel (3) may be inserted in a gap (2') between two (2) down tubes.

3. A folding bicycle comprising

- (A) a non-foldable, rigid frame (1) composed of a top tube, head tube, down tube(s) (2), and seat tube, and
- (B) a front-wheel assembly that rotates and folds.

4. A folding bicycle comprising

- a frame (1) which has a top tube, a head tube, a down tube (2), and a seat tube,
- a foldable front-wheel assembly which has a front wheel fork (4) rotatably attached to the frame (1), and a front wheel (3) mounted to the front wheel fork (4), and
- a foldable rear-wheel assembly which has chainstays (26) and a rear wheel (18) mounted to the chainstays (26), wherein the chainstays (26) together with the rear wheel (18) can be folded around a pivot (19), wherein
- the down tube (2) is made of two tubes having a gap (2') therebetween, and

the bicycle is further foldable by rotating the front wheel fork (4) and folding it toward the down tube (2) to thereby partially insert the front wheel (3) into the said gap (2').

5. The folding bicycle of one of claims 2 - 4, characterized in that it comprises a handlebar (34) which can be rotated backwards and folded downward toward the frame (1).

6. The folding bicycle of claim 4, characterized in that the pivot (19) has a shaft (22) connected to two coaxial sprockets (23, 24), wherein front and rear chains (25, 31) are provided connecting a chain ring (15) provided on the frame (1) and a rear sprocket (32), respectively, with the two coaxial sprockets (23, 24).

7. The folding bicycle according to claim 6, characterized by comprising a bracket (20) which extends from the frame (1) towards the rear wheel (18) and which holds the shaft (22).

8. The folding bicycle of one of claims 1 or 4, characterized in that the front wheel fork (4) is equipped with two swing-arms (7) which hold the front wheel (3), and one end part of which is pivotably coupled to the front wheel fork (4) and the other end part of which is coupled to a stirrup (8) which in turn is connected to the front wheel fork (4) and which encloses a portion of the front wheel (3).

9. The folding bicycle of claim 8, characterized by further comprising springs (14) arranged between the swing arms (7) and the front wheel fork (4).

10. The folding bicycle of claim 8 or 9, characterized in that the other end parts of the swing arms (7) comprise shock absorbers (14').

11. The folding bicycle of claim 10, characterized in that the shock absorbers (14') are of the elastomer, the hydraulic or the pneumatic type.

12. The folding bicycle of claims 4, characterized in that the chainstays (26) comprise a locking device.

13. The folding bicycle of claim 12, characterized in that the locking device comprises a pin.

14. The folding bicycle of claim 12 or 13, characterized in that the chainstays (6) comprise a shock absorber and/or a spring.

15. The folding bicycle of one of claims 1 to 14, characterized by further comprising an electric motor or an internal combustion motor.

16. The folding bicycle of one of claims 1 to 15, characterized by further comprising a second seat support (38) attached to the frame (1) and located behind a seat attached to the frame (1).

17. The folding bicycle of one of claims 1 to 16, characterized by further comprising cranks (16) equipped with folding pedals (11).

18. The folding bicycle of claim 4, characterized by further comprising seatstays (28) which connect the chainstays (26) to the frame (1) and which are releasably connected to a strut (29) extending from the frame (1).

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1/4

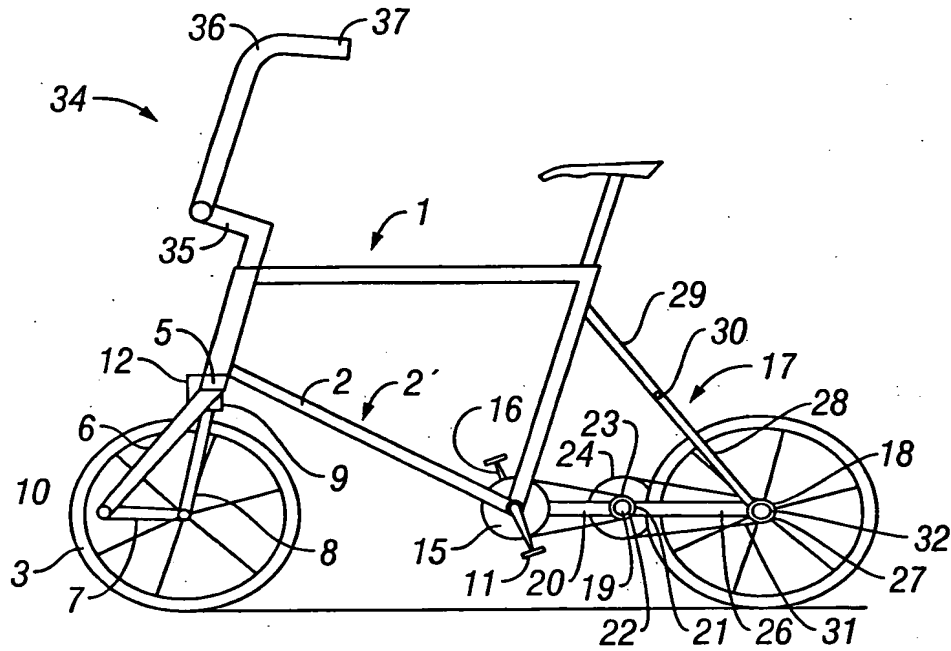


FIG. 1

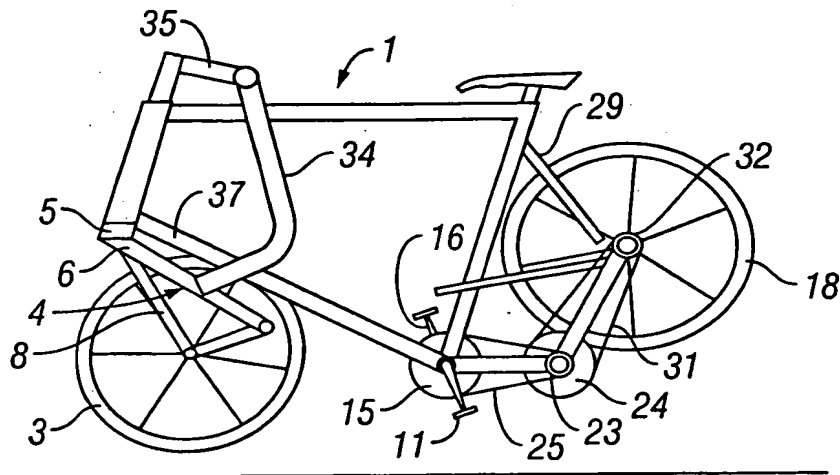


FIG. 2

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2/4

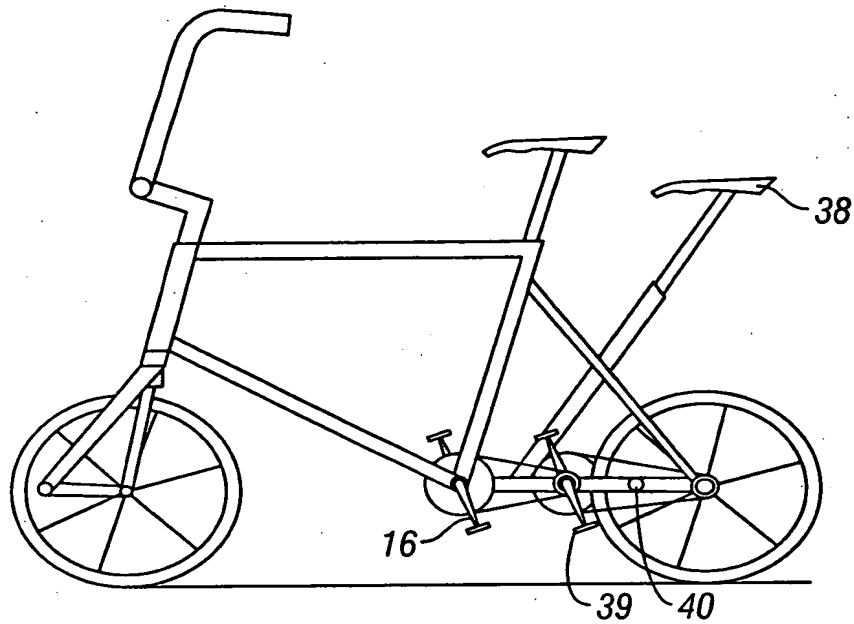


FIG. 3

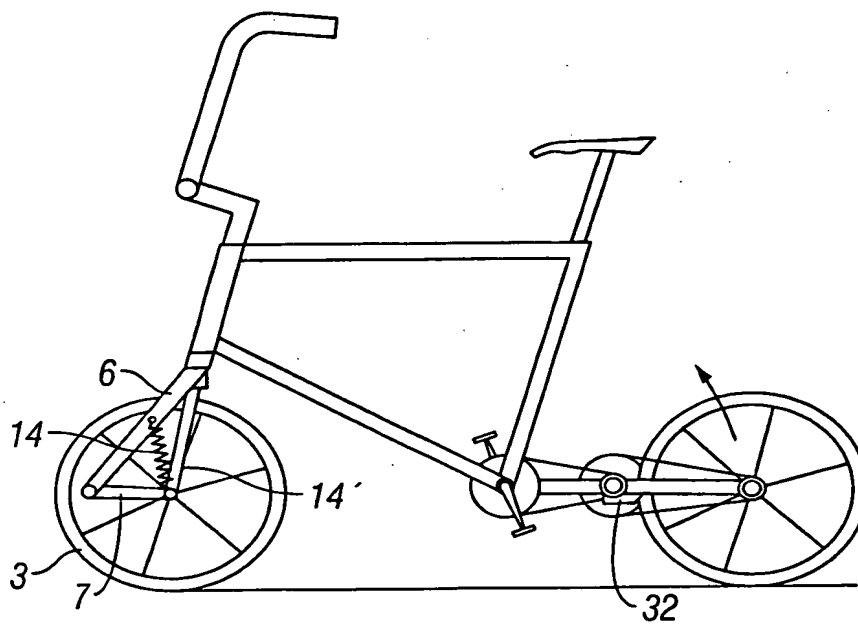


FIG. 4

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3/4

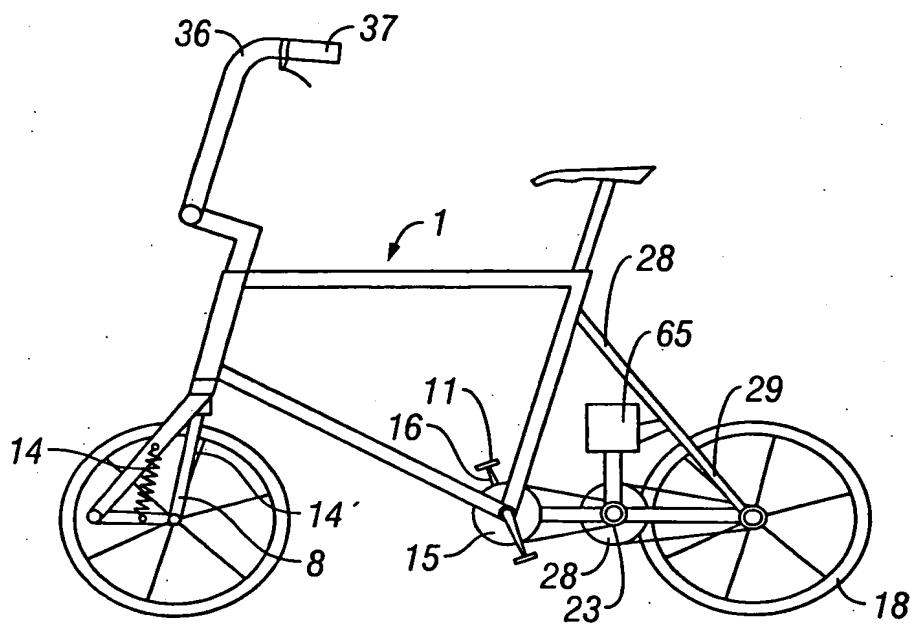


FIG. 5

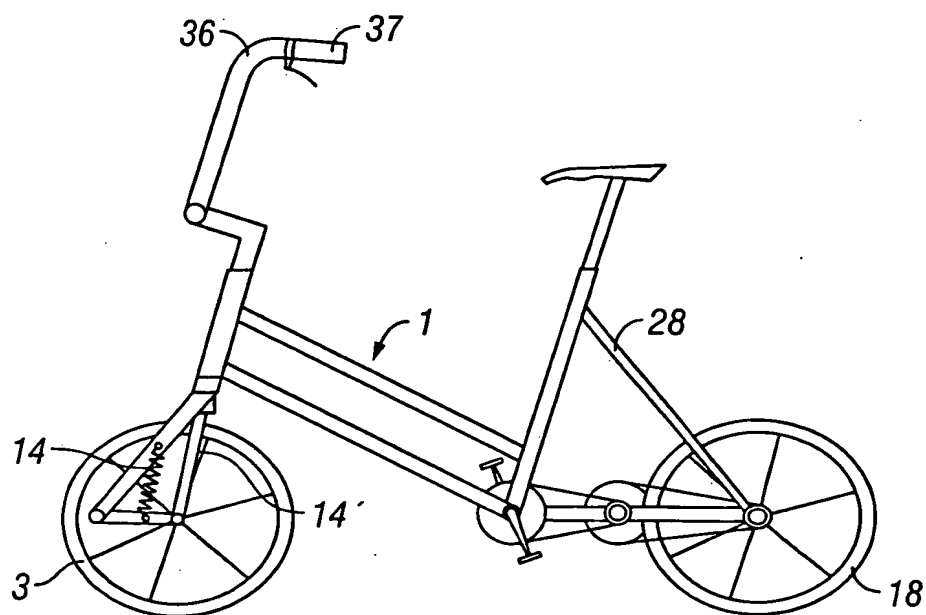


FIG. 6

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4/4

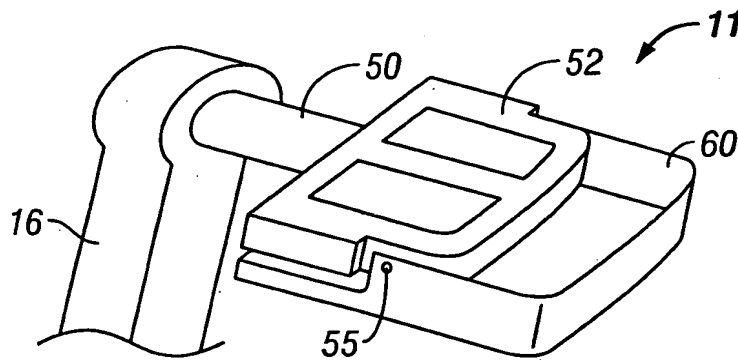


FIG. 7

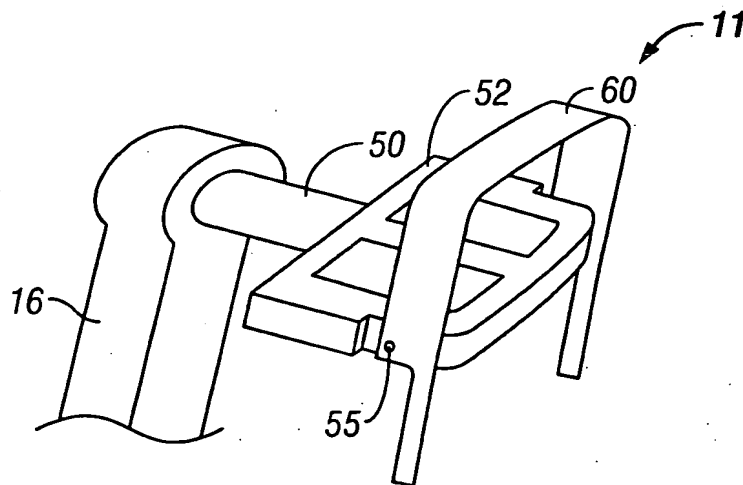


FIG. 8